4223

Diag. Cht. Nos. 1270 & 1272-2

Form 504

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

State: Louisiana

11—8613

DESCRIPTIVE REPORT.

Hydr. Sheet No. 4223

LOCALITY:

Mississippi River Delta

Off Breton and

Chandeleur Islands

1922.

CHIEF OF PARTY:

F. N. Bowman

4223

ORIGINAL

DESCRIPTIVE REPORT

TO ACCOMPANY

HYDROGRAPHIC SHEET

EAST OF CHANDELEUR AND

BRETON ISLANDS

LOUISIANA

JUNE - OCTOBER

1922

U. S. S. HYDROGRAPHER

F. S. Borden - Chief of Party.

H-4223 - 1-

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EXTENT

The sheet covered by this report comprises the area off Chandeleur and Breton Islands from Latitude 29-41 southward to Pass a Loutre entrance and from approximately the two fathom to the fifteen fathom curves. It forms a junction with the surveys made by the party on the Steamer Bache (1922) to the northward and eastward and with previous surveys made by the party on the Steamer Hydrographer (1917) to the Southward. The work was carried westward into Breton and Chandeleur Sounds until a junction was made with surveys shown on the present charts. A small area shown on the sheet southwest of Breton Island was surveyed by the party on the Steamer Bache in 1922 and the records turned over to the party on this vessel for completion. The area extanding inshore from the fifteen fathom curve, a distance of approximately 6 miles had been previously covered by dead reckoning lines spaced 2 miles apart. This work was done by the Steamer Bache in 1922 in connection with the offshore dead reckoning survey. However as this dead reckoningwork did not check the fixed position work of this party the entire area was developed to the same extent as the other areas, that is by east and west lines spaced one half mile apart and crossed by North and South lines spaced two miles apart.

CHANGES SINCE LAST SURVEY.

In general the bottom is regular over the area surveyed. No pronounced banks or shoals were found other than shown on the chart. From latitude 29-30 to latitude 29-41 and between the 9 and 15 fathom curves the bottom is somewhat irregular. In general the depths outside of the six fathom curve are greater than shown on the chart. This discrepancy between the present survey and the old chart increases going offshore to such an extent that the fifteen fathom curve is

several miles inshore of the curve as shown when drawn on the chart. It is probable however that this discrepancy is due to inaccurate methods used in the original survey rather than to actual change in the depths.

The depths in the proximity of Main Pass have decreased, the shoal water curves in this vicinity having moved out approximately one half mile. It is probable that the delta is building out at about this rate.

The long narrow shoal spit extending off the southwest end of Breton Island in the direction of Sable Islands has built considerably since the last survey. In order that the soundings on the sheet in this locality will not be misinterpreted attention is called to the six and eleven foot soundings on the outer end of the shoal, to the southeastward of G H Buoy, and to the five foot sounding two miles southwest of ⊙ Ton on the Southeast side of the spit. The Steamer Bache grounded in the locality of the former positions and the Hydrographer struck bottom in the latter position. During easterly weather a continuous line of breakers can be seen extending off the Southwest end of Breton Island a distance of approximately three miles.

The water areas and channels off the North and East sides of Breton Island remain the same as regards their relation to the Island but the North end of the island has moved approximately one half mile to the westward. The long shoal extending southwestward from what remains of Errol Island has built out more than a mile and at the outer end of this shoal there now exists a small sand islet bare at average high water in what is shown on the chart as sixteen feet of water. In connection with this islet it should be mentioned that the photostat copies of the topographic sheets forwarded to this vessel do not show this islet and its location and outline should be taken from the smooth hydrographic sheet, unless it has been shown on a topographic sheet other than those forwarded to this party. A forty foot signal (⊙ New) was erected on this islet for use in connection with the hydrographic work on the sheet. Between this islet and what remains of Errol Island the water is very shoal and is practically bear at low water. Two small areas which bare at low tide are shown on the sheet The new survey of Errol Island shows it to have practically been washed away and it is probably that the sediment from this island is carried to the southwestward and deposited on this long narrow shoal. The controlling depth into Breton Sound has not been changed by this building out process nor has the width of the channel been materially effected. On the other hand the area within the detached 12 foot curve which lies three miles southeast of Breton Island has materially decreased in size and now has a channel with a least depth of 15 feet to the eastward of it as well as the main channel to the westward of it. The least depth now on this detached shoal is 9 feet at M.L.W.

CONTROL

Control for the work shown on the sheet was obtained from recovered triangulation stations established by the party on the Hydrographer during a previous season. Some of the signals were still standing or had been rebuilt by the party on the Steamer Bache in the Spring of 1922. It was necessary however to build several tall hydrographic signals and supplement these with additional smaller ones. A 100 foot signal was built on Breton Island and an 80 foot signal on Errol Island.

Shore signals furnished control for approximately one half the distance to the 15 fathom curve which in this locality is 17 miles offshore. For the outer part of the work control was furnished by a line of buoys spaced 3 miles apart and as far out as it was possible to cut on them from fixed positions. With the exception of a small area at the north end of the work where it was necessary to plant 3 additional temporary markers, this one line of buoys made it possible to carry fixed position to the 15 fathom curve. A new type of buoy designed for this work and described in a separate report gave excellent results.

METHODS EMPLOYED, ETC.

As the topographic work, which was to be done was small in comparison and far removed from the hydrographic work covered by this sheet and as the best months of the year for hydrographic work in the Gulf are July, August and September the entire strength of the party was devoted to completing the hydrographic work during these months. The party was divided into two watches, the first watch having charge of the sounding from daylight until 8:00 A.M. and from noon until 4:00 P.M. and the second watch was in charge from 8:00 A.M. until noon and from 4:00 P.M. until dark. In general the vessel ran a continuous sounding line from the time the signals were visible in the morning until they were shut out in the evening by darkness except when the line had to be broken on account of rain squalls. Usually the vessel anchored at night on the last position for the day and picked up the line at the same point the following morning. Buoys were constructed over the week end while running to and from the working grounds (average distance 60 miles) and while in port over the week end. The buoys were dropped on Monday, generally with very little loss of time from sounding work and were located while running sounding lines in their vicinity.

As the vessel cannot carry coal for two weeks when engaged on intensive hydrographic work of this class the vessel was coaled each week. The general proceedure was to return to Gulfport Friday evening, the vessel tying up at the coal wharf. Coal, water and supplies were taken aboard on Saturday and the necessary anchors for buoys to be used the following week were cast. The vessel left port early Monday morning, completed the superstructures of the buoys while underway and dropped them on arrival on the working grounds.

With the exception of a small area off Pass a Loutre which it was necessary to survey in order to connect the work with adjacent sheets all sounding was in less than 16 fathoms and was done with the hand lead. Sounding in the small area mentioned above was done with steam sounding machine, these soundings being vertical casts. Different types of hand leadline material were used but by far the best results were obtained with the water proofed, solid braided tiller rope No. 8 with phosphorous bronze wire center. This line was used for perhaps 90% of the work. The only fault of this material is that it deteriorates rapidly due to the bending and breaking of the wire center after it has been in use for some time.

TIDES AND CURRENTS.

For the reduction of soundings over this entire area tidal observations were made at Chandeleur Island Light House. Although this station is a considerable distance from the south end of the work the tides are small and it is be-

lieved the variation in height and time of tide over the entire area is very slight. The only other locality where a station could have been established and an observer obtained would have been at Pass a Loutre Light House and it is doubtful whether this station, which is two miles up the Pass would have given any better results than the observations made at Chandeleur Island Light House.

The tide staff used by the party was nailed over the staff established and used by the Bache and the numbers made to coincide with this staff. When the seasons work was started the same value that had been obtained by the Bache for reducing readings on the staff to "height above reference plane" was used for the reduction of soundings. Later to check this value levels were run to the staff from the Bench Marks and it was found that the value instead of being 1.8 feet as used by the Steamer Bache should have been 2.0 feet. Consequently all soundings taken by this party which had been reduced up to the time the levels were run were decreased two tenths of a foot and 2.0 feet used thereafter as the value to reduce tide staff readings to "height above reference plane".

In connection with levels run from Bench Marks to the tide staff it should be stated that Bench Mark No. 4 did not check the other three bench marks, by six tenths of a foot. Mention of this in detail has been made in Volume 2 of the Tidal Records forwarded with this sheet.

The tides apparently are largely influenced by winds in this locality. In general a reference plane established from mean low waters obtained in the summer months would be several tenths higher than a plane established by mean low waters obtained in the winter time. This is due to the fact that the Northerly winds in the winter time lowers the level while the prevailing southerly winds in the summer time raise the level of the water.

The currents in the locality covered by this report are small and are largely due to winds except off the passes of the Mississippi where they set off shore. The Gulf stream counter current, which is surpassed to set to the southward off the Chandeleur Islands, was not noticed during the progress of the work.

CROSSING OF SOUNDING LINES, PLOTTING, etc.

In general the crossings on the sheet are very satisfactory and very seldom exceed one foot. In a few cases however in depths above eight fathoms the soundings fail to cross by two feet. This is attributed to the fact that sounding work was sometimes done in these depths where the sea was choppy. From observations made during the season the tendency seems to be to obtain soundings one or two feet greater when running with the sea than are obtained when running before it. For this reason a practise was made made of not sounding in shoal water or in important places except during comparatively smooth weather. It will be noted that positions 1 to 13 on "Y" day have been rejected. This work is a portion of one of the North and South cross lines and was done after all of the other work in this locality had been completed. It was later discovered that one of the buoys on which this line depended had dragged from its original position sufficient to throw the line considerably out of its correct position.

The entire sheet including projection, protracting of positions and plotting of soundings in pencil is the work of Ensign A. R. Jessup and was per-

formed in a very conscientious manner. Reducers, reduction and checking of soundings etc is the work of Messrs E. F. Delany and H. O. Olson, Deck Officers and was likewise performed in a very conscientious manner.

Respectfully submitted,

Frank S. Borden

Frank S. Borden.

Hydrographic Statistics are attached hereto.
7512

Date 1922	Letter	Volume	Positions	Soundings	Stat. Miles	Vessel
Sept. 26	P	17	52	401	22.0	Hydrographer
" 27	Q	17	56	210	15.4	"
Oct. 10	R	17	40	181	21.0	"
" 10	R	17	21	40	18.0	" Wire
" 11	S	17	9	101	4.0	"
TOTAL			3970	27,190	1720.9	

The soundings were taken in fathoms and feet and reduced to feet and tenths. The plane of reference was Mean Low Water. Tide gauge located at Chandeleur Light House Louisiana.

Lat. 30°- 02'- 52.45"
Long. 88 - 52'- 17.94"

The plane of reference reading on gauge was 2.0 feet.
Lowest Tide observed reading on gauge was 1.8 ft. on July 5 and July 6, 1922.

Highest tide observed reading on gauge was 4.6 ft. on October 5, 1922.

December 5, 1922.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
17 volumes of sounding records for

HYDROGRAPHIC SHEET 4223

Locality: Louisiana, off Chandeleur and Breton Islands, Gulf of Mexico.

Chief of Party: F. S. Borden and E. R. Hand, in 1922.
Plane of reference is mean low water, reading
2.0 ft. on tide staff at Chandeleur Lighthouse.

For reduction of soundings,
Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of each day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

G Rude

Chief, Division of Tides and Currents.

Hydrographic Sheet No. 4223.

The work on this sheet developes the area of Ile Chandeleur and Breton Islands from Lat. 29°41' to Pass a Loutre and connects with Sheet 4212 on the north and sheets 4213 + 4214 on the East. The sheet was developed by the Field Party up to and including pencil soundings.

In prottracting this work the signals used were, in most cases "Buoys" planted for the work and their positions established by cuts. Naturally these "Buoys" are constantly changing positions, due to wind and tide therefore the "positions where Buoys" were are as signals are more-or-less approximate. However by reason of the large scale of the sheet 1-80,000 the positions would not be enough in error to effect conditions materially.

The crossings are exceptionally good but a small number being questionable.

The work joins up with that on sheet #4212 4223 exceptionally well with the exception of the "dead reconing" work of this sheet. This dead reconing work is on tracing paper for the information and study of the office.

The records are generally well kept and easily followed. There are, however, more than the usual number of rejected angles, either right or left or both, which require back plotting or plotting on time and course. This does not materially affect the sheet as the bottom is so regular that several soundings of same depth appears between positions.

Only about 1/3 of the soundings could be plotted

John D. Torrey

Jan. 14/23

Hydrophie

ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY

AND REFER TO No. 4-DRM

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON

March 26, 1923.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4223.

Surveyed in 1922.

Instructions dated January 19, 1921.

Chiefs of Parties, F. S. Borden and E. R. Hand.

Surveyed by parties of Steamers Hydrographer and Bache.

Protracted and soundings plotted by A. R. Jessup.

Verified and inked by J. D. Torrey.

1. The records conform to the requirements of the General Instructions.

2. The plan and character of development fulfill the requirements of the General Instructions.

3. The plan and extent of the development satisfy the specific instructions.

4. The sounding line crossings are adequate.

5. The information is sufficient for drawing the usual depth curves.

6. The field plotting was completed to the extent prescribed in the General Instructions.

7. The junctions with the adjacent sheets are satisfactory except for the dead reckoning work of H. 4212 that overlaps H. 4223. As the control was good on the latter sheet and the sounding line crossings are excellent, indicating that it is the more accurate of the two sheets, the overlapping dead reckoning lines of H. 4212 should be rejected.

8. No further surveying is required within the area covered by the survey. It should be noted, however, that the inshore area extending from Bird Islands to Southeast Pass has not been surveyed in recent years.

9. The character and extent of the surveying as well as the field drafting are excellent.

10. Reviewed by E. P. Ellis, March, 1923.

Form 537
11—5812

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The finished Hydrographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

U. S. Coast and Geodetic Survey.

Register No. 4223
Field Sheet "C"

State . . Louisiana . . . . . .

General locality . . Mississippi R: Delta Off Chandeleur and Breton Islands . .

Locality ~~Pass a Loutre Entrance to latitude 29° - 41~~ . . . .

Chief of party . . F. S. Borden . . . . . .

Surveyed by . . . F. S. Borden . . . . . .

Date of survey . . June 30, 1922 - October 11, 1922 . . . .

Scale . . . . . 1:80,000 . . . . . .

Soundings in . . . . Feet . . . . . .

Plane of reference . . . M.L.W. . . . . .

Protracted by A.R.Jessup . . Soundings in pencil by . A.R.Jessup

Inked by J. U. Torrey . . Verified by J. U. Torrey . . . .

Records accompanying sheet (check those forwarded):

Des. report, 4 Tide books, ... Marigrams, 2 Boat sheets,

17 Sounding books, ... Wire-drag books, ... Photographs.

Data from other sources affecting sheet . . . . . .

Remarks:

Applied to new Chart 11366 10-30-91 John Pierce